Central Valley Project Improvement Act (FY 2000)
INFORMATION ABOUT THE SCOPE OF WORK
Butte Slough Analysis Project

1. **Scope of the project:**
The Lower Butte Creek Butte Slough Analysis Project (Project), is a project to develop recommendations for enhanced fish passage in the Butte Slough area while maintaining the viability of associated agriculture and managed wetlands. The Butte Slough area begins at the Tarke/Colusa Shooting Outfall Weir (Tarke Weir) on Butte Creek and proceeds downstream to the confluence with Butte Slough then along Butte Slough to the East West Diversion Weir located at the head end of the Sutter Bypass. This reach of Lower Butte Creek contains the Butte Slough Outfall Gates that discharge Butte Creek/Butte Sink flood waters directly into the Sacramento River under certain river stage conditions. In addition to its flood control role, Butte Slough supplies irrigation water to Sutter Bypass users and 26 small pump diverters in the Project area.

The Project will provide additional analysis to identify, locate and characterize the 26 small pumps located along Butte Slough and adjacent Butte Creek areas with recommended actions for fish passage modifications. The Project and its recommendations will be coordinated with overall operations plans for Sutter Bypass/Butte Slough and is supported by local stakeholders involved in Lower Butte Creek Project evaluation.

The Project supports Butte Creek Evaluations # 6, a medium priority action and a medium priority evaluation in a high priority watershed.

The timeframe for the project is January 1, 2000 to December 31, 2000.

2. **Justification and benefits of the project**:

Objective: Within the Butte Slough Sub-area, reduce or eliminate delay and injury to Butte Creek adult salmon and steelhead and reduce or eliminate entrainment of juvenile Butte Creek and Sacramento River salmon and steelhead and other listed fish species under controlled-flow conditions while maintaining the viability of associated managed wetlands and agricultural operations.

Related Benefits: Improved fish passage through Butte Slough and adjacent Butte Creek areas is expected to improve the long-term sustainability of natural production of anadromous fish populations, in particular spring-run chinook salmon and steelhead. Maintaining the viability of associated managed wetlands and agriculture is expected to improve the health and long-term sustainability of waterfowl and other resident species including species of special concern.

3. **Monitoring and data evaluation:**
The data collected from the tasks described in this proposal will be used by the Butte Slough Action committee to design and build the proposed structural modifications and water management system needed to ensure the safe passage of anadromous fish through Butte Slough and adjacent Butte Creek areas. A committee comprised of stakeholder leadership, resource agencies, regulatory agencies, interested non-profits, and consultants will oversee the project and advise the project team on their issues and concerns. With this input, the proposed fish passage enhancement projects are expected to be coordinated with on-going Butte Creek restoration projects and be consistent with other watershed objectives and requirements.

Table 1. Summary of ecological/biological objectives, associated hypothesis and monitoring parameters and approaches

1. Biological/Ecological Objective: Increase chinook salmon, steelhead, and splittail survival within Butte Creek below Tarke Weir and Butte Slough, by reducing or eliminating delay and injury to Butte Creek adult fish and by improving passage conditions and reducing entrainment in diversions for juvenile and larval fish from Butte Creek and the Sacramento River under controlled-flow conditions while maintaining the viability of associated managed wetlands and agricultural operations.

Question to be evaluated/Hypothesis	Monitoring Parameter and Data Collection	Data Evaluation Approach	Comments
Can the diversions located on Butte Creek downstream of the Tarke Weir, including Butte Slough, be screened, hydraulically configured and operated to minimize ostensible take to a level acceptable under ESA/CESA, of juvenile and adult salmon, steelhead and Sacramento split-tail during controlled-flow conditions?	Identify small unscreened pumps and diversions; collect data on size, location, pumping season, diversion history and water right information for each site.	Analyze the impact of the 26 small pumps located along Butte Slough on fish passage and make recommendations on structural modifications and operational guidelines for the pumps during times fish are present and pumps are being operated.	Study Priority and status: High Priority, Included in Existing Plans AFRP Evaluation # 6 CALFED EERP 2/99 Species/Species Group: Goal 1, Endangered Species Priority Group 2

4. **Work to be performed and deliverables:**

Task 1: Project Management

1a. Establish a landowner action committee to review and approve project actions; schedule meetings; record and distribute minutes; coordinate/facilitate committee actions.
1b. Establish technical review committee to review all landowner committee actions for compliance with federal, state and local programs.
1c. Coordinate with consultant and landowners to develop a final list of pumping plants and recommended future actions for Outfall Gates and nuisance flooding.

Deliverable: Committee reports including meeting place and times, agendas, meeting minutes and correspondence

Timeframe: January 1, 2000 to December 31, 2000

Task 2. Small Pump Analysis

3a. Using data from State Water Resources Control Board, Division of Water Rights Library, identify and locate all legal diversions on Butte Creek below the Tarke Weir and Butte Slough from the Outfall Gates to the Old Long Bridge.
3b. Develop and confirm information on the diversion sites including location, elevation, sizes of pumps, pumping season and maximum flows.
3c. Develop recommendations for modifications to the pumps including possible removal, consolidation, screening and alternate sources of water.

Deliverable: A report showing location, elevation, size of pumps, pumping season and maximum flows for all pumps located along Butte Creek below the Tarke Weir and Butte Slough including recommendations for modifications to pumps including possible removal, consolidation, screening and alternate sources of water.

Timeframe: July 1, 2000 to December 31, 2000

2. **Budget-** Listed below in Table 2 is the Project budget with a breakdown into the following categories: 1) direct labor hours; 2) direct salary and benefits; 3) overhead and indirect costs; 4) service contracts; 5) material and acquisition costs; and, 6) miscellaneous and other direct costs. Table 3 contains a quarterly breakdown of the Project costs.

Table 2 - Example cost breakdown table

Project Phase and Task	Direct Labor Hours	Direct Salary and Benefits	Overhead Labor (General, Admin. and fee)	Service Contracts	Material and Acquisition Contracts	Misc. and other Direct Costs	Totals
Task 1. Task1a/b. task 1c.	 100 100	 4200 5300	 840 1060				11400
Task 2: Task 2a/bc.				15000			15000
TOTAL		9500	1900	15000			26400

Table 3 - Sample quarterly budget

Task	Quarterly Budget Jan-Mar 00	Quarterly Budget Apr-Jun 00	Quarterly Budget Jul-Sep 00	Quarterly Budget Oct-Dec 00	Total Budget
Task 1:	2850	2850	2850	2850	11400
Task 2:			7500	7500	15000
TOTAL	2850	2850	10350	10350	26400